

## WEST Search History

DATE: Tuesday, September 30, 2003

Set Name Query  
side by side

Hit Count Set Name  
result set

*DB=USPT,PGPB,JPAB,EPAB,DWPI; THES=ASSIGNEE; PLUR=YES;  
OP=ADJ*

L1 (mortierella alpina or m. alpina) and (desaturase or oxidase or  
oxidoreductase) and (Carbon adj2 6 or C adj2 6)

19 L1

END OF SEARCH HISTORY

**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 19 of 19 returned.**☐ 1. Document ID: US 20030167525 A1

L1: Entry 1 of 19

File: PGPB

Sep 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030167525  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030167525 A1

TITLE: Desaturase genes and uses thereof

PUBLICATION-DATE: September 4, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Mukerji, Pradip	Gahanna	OH	US	
Huang, Yung-Sheng	Upper Arlington	OH	US	
Das, Tapas	Worthington	OH	US	
Thurmond, Jennifer	Columbus	OH	US	
Leonard, Amanda Eun-Yeong	Columbus	OH	US	
Pereira, Suzette L.	Westerville	OH	US	

US-CL-CURRENT: 800/281; 435/190, 435/320.1, 435/419, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
Draw Desc	Image										

☐ 2. Document ID: US 20030165604 A1

L1: Entry 2 of 19

File: PGPB

Sep 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030165604  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030165604 A1

TITLE: Products containing \$g(b)\$-glucan

PUBLICATION-DATE: September 4, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Tsubaki, Kazufumi	Tokyo		JP	
Sugiyama, Hiromu	Tokyo		JP	
Shoji, Yoshikazu	Tokyo		JP	

US-CL-CURRENT: 426/549

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
Draw Desc	Image										

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☐ 3. Document ID: US 20030157144 A1

L1: Entry 3 of 19

File: PGPB

Aug 21, 2003

PGPUB-DOCUMENT-NUMBER: 20030157144  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030157144 A1

TITLE: Desaturase genes and uses thereof

PUBLICATION-DATE: August 21, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Mukerji, Pradip	Gahanna	OH	US	
Huang, Yung-Sheng	Columbus	OH	US	
Das, Tapas	Worthington	OH	US	
Thurmond, Jennifer	Columbus	OH	US	
Pereira, Suzette L.	Westerville	OH	US	

US-CL-CURRENT: 424/439; 435/134, 435/190, 435/320.1, 435/325, 435/419, 435/69.1,  
536/23.2, 554/9, 800/17, 800/281

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
Draw Desc	Image										

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☐ 4. Document ID: US 20030134400 A1

L1: Entry 4 of 19

File: PGPB

Jul 17, 2003

PGPUB-DOCUMENT-NUMBER: 20030134400  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030134400 A1

TITLE: Delta4-desaturase genes and uses thereof

PUBLICATION-DATE: July 17, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Mukerji, Pradip	Gahanna	OH	US	
Thurmond, Jennifer	Columbus	OH	US	
Huang, Yung-Sheng	Upper Arlington	OH	US	
Das, Tapas	Worthington	OH	US	
Leonard, Amanda Eun-Yeong	Gahanna	OH	US	
Pereira, Suzette L.	Westerville	OH	US	

US-CL-CURRENT: 435/134; 435/190, 435/254.2, 435/320.1, 435/419, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

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☐ 5. Document ID: US 20020146784 A1

L1: Entry 5 of 19

File: PGPB

Oct 10, 2002

PGPUB-DOCUMENT-NUMBER: 20020146784  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020146784 A1

TITLE: METHOD FOR PRODUCING HIGHLY UNSATURATED FATTY ACIDS AND LIPID CONTAINING SAME  
PUBLICATION-DATE: October 10, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
SUZUKI, OSAMU	HIROSHIMA		JP	
ONO, KAZUHISA	HIROSHIMA		JP	
SHIGETA, SEIKO	HIROSHIMA		JP	
AKI, TSUNEHIRO	HIROSHIMA		JP	
AKIMOTO, KENGO	OSAKA		JP	

US-CL-CURRENT: 435/134; 435/254.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

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☐ 6. Document ID: US 20010021522 A1

L1: Entry 6 of 19

File: PGPB

Sep 13, 2001

PGPUB-DOCUMENT-NUMBER: 20010021522  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20010021522 A1

TITLE: Process for production of dihomogamma-linolenic acid and lipid containing same  
PUBLICATION-DATE: September 13, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kawashima, Hiroshi	Osaka		JP	
Akimoto, Kengo	Osaka		JP	
Yamada, Hideaki	Kyoto-shi		JP	
Shimizu, Sakayu	Kyoto-shi		JP	

US-CL-CURRENT: 435/134

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

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☐ 7. Document ID: US 6602690 B2

L1: Entry 7 of 19

File: USPT

Aug 5, 2003

US-PAT-NO: 6602690  
DOCUMENT-IDENTIFIER: US 6602690 B2

TITLE: Process for production of dihomogamma-linolenic acid and lipid containing same

DATE-ISSUED: August 5, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kawashima; Hiroshi	Ibaraki			JP
Akimoto; Kengo	Ibaraki			JP
Yamada; Hideaki	Kyoto			JP
Shimizu; Sakayu	Kyoto			JP

US-CL-CURRENT: 435/134, 435/135, 435/136, 514/549, 514/551, 514/560

ABSTRACT:

A process for the production of dihomogamma-linolenic acid comprising the steps of culturing a microorganism having an ability to produce arachidonic acid and having a reduced or lost .DELTA.5 desaturase activity to produce dihomogamma-linolenic acid or a lipid containing dihomogamma-linolenic acid, and recovering the dihomogamma-linolenic acid.

4 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWIC

☐ 8. Document ID: US 6589767 B1

L1: Entry 8 of 19

File: USPT

Jul 8, 2003

US-PAT-NO: 6589767

DOCUMENT-IDENTIFIER: US 6589767 B1

TITLE: Methods and compositions for synthesis of long chain polyunsaturated fatty acids

DATE-ISSUED: July 8, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knutzon; Deborah	Granite Bay	CA		
Mukerji; Pradip	Gahanna	OH		
Huang; Yung-Sheng	Upper Arlington	OH		
Thurmond; Jennifer	Columbus	OH		
Chaudhary; Sunita	Westerville	OH		

US-CL-CURRENT: 435/189

ABSTRACT:

The present invention relates to a fatty acid .DELTA.5-desaturase able to catalyze the conversion of dihomogamma-linolenic acid to arachidonic acid. Nucleic acid sequences encoding a .DELTA.5-desaturase, nucleic acid sequences which hybridize thereto, DNA constructs comprising a .DELTA.5-desaturase gene, and recombinant host microorganism or animal expressing increased levels of a .DELTA.5-desaturase are described. Methods for desaturating a fatty acid at the .DELTA.5 position and for producing arachidonic acid by expressing increased levels of a .DELTA.5 desaturase are disclosed. Fatty acids, and

oils containing them, which have been desaturated by a .DELTA.5-desaturase produced by recombinant host microorganisms or animals are provided. Pharmaceutical compositions, infant formulas or dietary supplements containing fatty acids which have been desaturated by a .DELTA.5-desaturase produced by a recombinant host microorganism or animal also are described.

22 Claims, 23 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 17

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 9. Document ID: US 6503734 B1

L1: Entry 9 of 19

File: USPT

Jan 7, 2003

US-PAT-NO: 6503734  
DOCUMENT-IDENTIFIER: US 6503734 B1

TITLE: Cytochrome b5 gene and protein of Candida tropicalis and methods relating thereto

DATE-ISSUED: January 7, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Craft; David L.	Fort Thomas	KY		
Madduri; Krishna M.	Westfield	IN		
Loper; John C.	Cincinnati	OH		

US-CL-CURRENT: 435/69.1; 435/254.11, 435/255.4, 435/320.1, 536/23.2

ABSTRACT:

A novel gene has been isolated which encodes cytochrome b5 (CYTb5) protein of the .omega.-hydroxylase complex of C. tropicalis 20336. Vectors including this gene, and transformed host cells are provided. Methods of increasing the production of a CYTb5 protein are also provided which involve transforming a host cell with a gene encoding this protein and culturing the cells. Methods of increasing the production of a dicarboxylic acid are also provided which involve increasing in the host cell the number of genes encoding this protein.

22 Claims, 57 Drawing figures  
Exemplary Claim Number: 21  
Number of Drawing Sheets: 56

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 10. Document ID: US 6459018 B1

L1: Entry 10 of 19

File: USPT

Oct 1, 2002

US-PAT-NO: 6459018  
DOCUMENT-IDENTIFIER: US 6459018 B1

TITLE: Polyunsaturated fatty acids in plants

DATE-ISSUED: October 1, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knutzon; Debbie	Granite Bay	CA		

US-CL-CURRENT: 800/281; 435/419, 435/468, 435/69.1, 800/298

## ABSTRACT:

The present invention relates to compositions and methods for preparing polyunsaturated long chain fatty acids in plants, plant parts and plant cells, such as leaves, roots, fruits and seeds. Nucleic acid sequences and constructs encoding fatty acid desaturases, including .DELTA.5-desaturases, .DELTA.6-desaturases and .DELTA.12-desaturases, are used to generate transgenic plants, plant parts and cells which contain and express one or more transgenes encoding one or more desaturases. Expression of the desaturases with different substrate specificities in the plant system permit the large scale production of polyunsaturated long chain fatty acids such as docosahexaenoic acid, eicosapentaenoic acid, .alpha.-linolenic acid, gamma-linolenic acid, arachidonic acid and the like for modification of the fatty acid profile of plants, plant parts and tissues. Manipulation of the fatty acid profiles allows for the production of commercial quantities of novel plant oils and products.

12 Claims, 2 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWAC
Draw Desc	Image									

☐ 11. Document ID: US 6410288 B1

L1: Entry 11 of 19

File: USPT

Jun 25, 2002

US-PAT-NO: 6410288

DOCUMENT-IDENTIFIER: US 6410288 B1

TITLE: Methods and compositions for synthesis of long chain poly-unsaturated fatty acids

DATE-ISSUED: June 25, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knutzon; Deborah	Granite Bay	CA		
Mukerji; Pradip	Gahanna	OH		
Huang; Yung-Sheng	Upper Arlington	OH		
Thurmond; Jennifer	Columbus	OH		
Chaudhary; Sunita	Westerville	OH		

US-CL-CURRENT: 435/189; 536/23.2

## ABSTRACT:

The present invention relates to fatty acid desaturases able to catalyze the conversion of oleic acid to linoleic acid, linoleic acid to gamma-linolenic acid, or of alpha-linolenic acid to stearidonic acid. Nucleic acid sequences encoding desaturases, nucleic acid sequences which hybridize thereto, DNA constructs comprising a desaturase

gene, and recombinant host microorganism or animal expressing increased levels of a desaturase are described. Methods for desaturating a fatty acid and for producing a desaturated fatty acid by expressing increased levels of a desaturase are disclosed. Fatty acids, and oils containing them, which have been desaturated by a desaturase produced by recombinant host microorganisms or animals are provided. Pharmaceutical compositions, infant formulas or dietary supplements containing fatty acids which have been desaturated by a desaturase produced by a recombinant host microorganism or animal also are described.

20 Claims, 19 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 16

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

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☐ 12. Document ID: US 6280982 B1

L1: Entry 12 of 19

File: USPT

Aug 28, 2001

US-PAT-NO: 6280982

DOCUMENT-IDENTIFIER: US 6280982 B1

TITLE: Process for production of dihomogamma-linolenic acid and lipid containing same

DATE-ISSUED: August 28, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kawashima; Hiroshi	Ibaraki			JP
Akimoto; Kengo	Ibaraki			JP
Yamada; Hideaki	Kyoto			JP
Shimizu; Sakayu	Kyoto			JP

US-CL-CURRENT: 435/134; 435/136, 435/187

## ABSTRACT:

A process for the production of dihomogamma-linolenic acid comprising the steps of culturing a microorganism having an ability to produce araquidonic acid and having a reduced or lost .DELTA.5 desaturase activity to produce dihomogamma-linolenic acid or a lipid containing dihomogamma-linolenic acid, and recovering the dihomogamma-linolenic acid.

28 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

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☐ 13. Document ID: US 6136574 A

L1: Entry 13 of 19

File: USPT

Oct 24, 2000

US-PAT-NO: 6136574

DOCUMENT-IDENTIFIER: US 6136574 A



**\*\* See image for Certificate of Correction \*\***

TITLE: Methods and compositions for synthesis of long chain polyunsaturated fatty acids

DATE-ISSUED: October 24, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knutzon; Deborah	Granite Bay	CA		
Mukerji; Pradip	Gahanna	OH		
Huang; Yung-Sheng	Upper Arlington	OH		
Thurmond; Jennifer	Columbus	OH		
Chaudhary; Sunita	Pearland	TX		

US-CL-CURRENT: 435/134; 435/136

ABSTRACT:

The present invention relates to fatty acid desaturases able to catalyze the conversion of oleic acid to linoleic acid, linoleic acid to gamma-linolenic acid, or of alpha-linolenic acid to stearidonic acid. Nucleic acid sequences encoding desaturases, nucleic acid sequences which hybridize thereto, DNA constructs comprising a desaturase gene, and recombinant host microorganism or animal expressing increased levels of a desaturase are described. Methods for desaturating a fatty acid and for producing a desaturated fatty acid by expressing increased levels of a desaturase are disclosed. Fatty acids, and oils containing them, which have been desaturated by a desaturase produced by recombinant host microorganisms or animals are provided. Pharmaceutical compositions, infant formulas or dietary supplements containing fatty acids which have been desaturated by a desaturase produced by a recombinant host microorganism or animal also are described.

22 Claims, 18 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 16

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWAC

☐ 14. Document ID: US 6075183 A

L1: Entry 14 of 19

File: USPT

Jun 13, 2000

US-PAT-NO: 6075183

DOCUMENT-IDENTIFIER: US 6075183 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Methods and compositions for synthesis of long chain poly-unsaturated fatty acids in plants

DATE-ISSUED: June 13, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knutzon; Deborah	Granite Bay	CA		
Mukerji; Pradip	Gahanna	OH		
Huang; Yung-Sheng	Upper Arlington	OH		
Thurmond; Jennifer	Columbus	OH		
Chaudhary; Sunita	Pearland	TX		

US-CL-CURRENT: 800/281; 435/134, 435/252.3, 435/419, 435/430, 435/468, 435/471,  
435/69.1, 536/23.2, 800/298

## ABSTRACT:

The present invention relates to compositions and methods for preparing poly-unsaturated long chain fatty acids in plants, plant parts and plant cells, such as leaves, roots, fruits and seeds. Nucleic acid sequences and constructs encoding fatty acid desaturases, including .DELTA.5-desaturases, .DELTA.6-desaturases and .DELTA.12-desaturases, are used to generate transgenic plants, plant parts and cells which contain and express one or more transgenes encoding one or more desaturases. Expression of the desaturases with different substrate specificities in the plant system permit the large scale production of poly-unsaturated long chain fatty acids such as docosahexaenoic acid, eicosapentaenoic acid, .alpha.-linoleic acid, gamma-linolenic acid, arachidonic acid and the like for modification of the fatty acid profile of plants, plant parts and tissues. Manipulation of the fatty acid profiles allows for the production of commercial quantities of novel plant oils and products.

22 Claims, 7 Drawing figures

Exemplary Claim Number: 19

Number of Drawing Sheets: 17

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw	Desc	Image							

KWAC

☐ 15. Document ID: US 5972664 A

L1: Entry 15 of 19

File: USPT

Oct 26, 1999

US-PAT-NO: 5972664

DOCUMENT-IDENTIFIER: US 5972664 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Methods and compositions for synthesis of long chain poly-unsaturated fatty acids

DATE-ISSUED: October 26, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knutzon; Deborah	Granite Bay	CA		
Mukerji; Pradip	Grahanna	OH		
Huang; Yung-Sheng	Arlington	OH		
Thurmond; Jennifer	Columbus	OH		
Chaudhary; Sunita	Westerville	OH		

US-CL-CURRENT: 435/136; 435/189, 435/252.3, 435/254.3, 435/320.1, 536/23.2

## ABSTRACT:

The present invention relates to a fatty acid .DELTA.5-desaturase able to catalyze the conversion of dihomogamma-linolenic acid to arachidonic acid. Nucleic acid sequences encoding a .DELTA.5-desaturase, nucleic acid sequences which hybridize thereto, DNA constructs comprising a .DELTA.5-desaturase gene, and recombinant host microorganism or animal expressing increased levels of a .DELTA.5-desaturase are described. Methods for desaturating a fatty acid at the .DELTA.5 position and for producing arachidonic acid by expressing increased levels of a .DELTA.5 desaturase are disclosed. Fatty acids, and oils containing them, which have been desaturated by a .DELTA.5-desaturase produced by recombinant host microorganisms or animals are provided. Pharmaceutical compositions, infant formulas or dietary supplements containing fatty acids which have been desaturated by a .DELTA.5-desaturase produced by a recombinant host microorganism or animal also are described.

52 Claims, 21 Drawing figures  
Exemplary Claim Number: 34  
Number of Drawing Sheets: 17

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWMC

☐ 16. Document ID: US 5968809 A

L1: Entry 16 of 19

File: USPT

Oct 19, 1999

US-PAT-NO: 5968809  
DOCUMENT-IDENTIFIER: US 5968809 A  
\*\* See image for Certificate of Correction \*\*

TITLE: Methods and compositions for synthesis of long chain poly-unsaturated fatty acids

DATE-ISSUED: October 19, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knutzon; Deborah	Granite Bay	CA		
Mukerji; Pradip	Gahanna	OH		
Huang; Yung-Sheng	Upper Arlington	OH		
Thurmond; Jennifer	Columbus	OH		
Chaudhary; Sunita	Westerville	OH		

US-CL-CURRENT: 435/254.2; 435/189, 435/254.21, 435/320.1, 435/325, 435/410, 536/23.1, 536/23.2, 536/23.7, 536/23.74, 536/24.32

## ABSTRACT:

The present invention relates to fatty acid desaturases able to catalyze the conversion of oleic acid to linoleic acid, linoleic acid to gamma-linolenic acid, or of alpha-linolenic acid to stearidonic acid. Nucleic acid sequences encoding desaturases, nucleic acid sequences which hybridize thereto, DNA constructs comprising a desaturase gene, and recombinant host microorganism or animal expressing increased levels of a desaturase are described. Methods for desaturating a fatty acid and for producing a desaturated fatty acid by expressing increased levels of a desaturase are disclosed. Fatty acids, and oils containing them, which have been desaturated by a desaturase produced by recombinant host microorganisms or animals are provided. Pharmaceutical compositions, infant formulas or dietary supplements containing fatty acids which have been desaturated by a desaturase produced by a recombinant host microorganism or animal also are described.

30 Claims, 18 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 16

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWMC

☐ 17. Document ID: US 5674853 A

L1: Entry 17 of 19

File: USPT

Oct 7, 1997

US-PAT-NO: 5674853

DOCUMENT-IDENTIFIER: US 5674853 A

TITLE: Enteral formulations for treatment of inflammation and infection

DATE-ISSUED: October 7, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Forse; R. Armour	Brookline	MA		
Chavali; Sambasiva	Boston	MA		

US-CL-CURRENT: 514/25, 424/755, 424/764, 424/765, 424/776, 424/DIG.13, 514/464,  
514/468, 514/783, 514/825, 514/886, 514/887, 514/904, 514/905

## ABSTRACT:

The present invention features saponin containing enteral formulations for treatment of infection and inflammation. These saponin containing formulations are particularly useful in conjunction with oils rich in .omega.3 polyunsaturated fatty acids such as fish oils and flax oil but also show benefits with .omega.6 rich oils such as borage oil, black currant seed oil, canola oil and rapeseed oil. These formulations may also contain a lignan from the sesamin family.

16 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw	Desc	Image							

KWD

☐ 18. Document ID: US 5397778 A

L1: Entry 18 of 19

File: USPT

Mar 14, 1995

US-PAT-NO: 5397778

DOCUMENT-IDENTIFIER: US 5397778 A

TITLE: Enteral formulations for treatment of inflammation and infection

DATE-ISSUED: March 14, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Forse; R. Armour	Brookline	MA		
Chavali; Sambasiva	Boston	MA		

US-CL-CURRENT: 514/198, 424/755, 424/764, 424/765, 424/776, 424/DIG.13, 426/804,  
426/810, 514/464, 514/468, 514/783, 514/825, 514/886, 514/887, 514/904, 514/905

## ABSTRACT:

The present invention features saponin containing enteral formulations for treatment of infection and inflammation. These saponin containing formulations are particularly useful in conjunction with oils rich in .omega.3 polyunsaturated fatty acids such as fish oils and flax oil but also show benefits with .omega.6 rich oils such as borage oil, black currant seed oil, canola oil and rapeseed oil. These formulations may also contain a lignan from the sesamin family.

16 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

19. Document ID: WO 9846763 A1 AU 9869616 A US 5968809 A NO 9904925 A EP 975766 A1 EP 996732 A1 CZ 9903583 A3 BR 9808507 A CN 1252099 A SK 9901398 A3 CN 1253588 A NZ 337457 A NZ 337459 A HU 200001236 A2 US 6136574 A AU 726807 B MX 9909328 A1 MX 9909329 A1 KR 2001006257 A KR 2001006258 A JP 2001523091 W US 6410288 B1

L1: Entry 19 of 19

File: DWPI

Oct 22, 1998

DERWENT-ACC-NO: 1998-594582

DERWENT-WEEK: 200353

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TITLE: New isolated fatty acid desaturase enzymes - used for the production of polyunsaturated fatty acids for use in, e.g. pharmaceutical compositions, nutritional compositions, cosmetics or animal feed

INVENTOR: CHAUDHARY, S; HUANG, Y ; KNUTZON, D ; LEONARD, A E ; MUKERJI, P ; THURMOND, J

PRIORITY-DATA: 1997US-0834655 (April 11, 1997), 1997US-0833610 (April 11, 1997), 1997US-0834033 (April 11, 1997), 1997US-0956985 (October 24, 1997), 1999US-0363574 (July 29, 1999), 1998WO-US07421 (April 10, 1998), 1999US-0363526 (July 29, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9846763 A1	October 22, 1998	E	165	C12N015/53
AU 9869616 A	November 11, 1998		000	
US 5968809 A	October 19, 1999		000	C12N001/16
NO 9904925 A	November 30, 1999		000	C12N000/00
EP 975766 A1	February 2, 2000	E	000	
EP 996732 A1	May 3, 2000	E	000	
CZ 9903583 A3	May 17, 2000		000	C12N015/53
BR 9808507 A	May 23, 2000		000	C12N015/53
CN 1252099 A	May 3, 2000		000	C12N015/53
SK 9901398 A3	May 16, 2000		000	C12N015/53
CN 1253588 A	May 17, 2000		000	
NZ 337457 A	July 28, 2000		000	A61K031/20
NZ 337459 A	July 28, 2000		000	A61K031/20
HU 200001236 A2	July 28, 2000		000	C12N015/53
US 6136574 A	October 24, 2000		000	C12P007/64
AU 726807 B	November 23, 2000		000	C12N015/53
MX 9909328 A1	September 1, 2000		000	C12N015/53
MX 9909329 A1	September 1, 2000		000	C12N015/53
KR 2001006257 A	January 26, 2001		000	C12N015/53
KR 2001006258 A	January 26, 2001		000	C12N015/82
JP 2001523091 W	November 20, 2001		174	C12N015/09
US 6410288 B1	June 25, 2002		000	C12N009/02

9909328 A1 INT-CL (IPC): A23 K 1/00; A23 K 1/16; A23 L 1/28; A23 L 1/30; A61 K 7/00; A61 K 31/20; A61 K 31/202; A61 K 31/232; A61 K 38/00; A61 P 17/00; C07 H 21/04; C11 B 1/00; C12 N 0/00; C12 N 1/16; C12 N 1/19; C12 N 5/10; C12 N 9/02; C12 N 15/09; C12 N

15/53; C12 N 15/81; C12 N 15/82; C12 P 7/64

ABSTRACTED-PUB-NO: US 5968809A

BASIC-ABSTRACT:

An isolated nucleic acid having a 1617 or 1488 base pair sequence ((S1) and (S2) encoding a polypeptide of 457 or 399 amino acids ((S3) and (S4)) respectively, is new. Also claimed: (1) an isolated nucleic acid comprising a nucleotide sequence (NS) which encodes a polypeptide which desaturates a fatty acid molecule at carbon 6 or 12 from the carboxyl end of the polypeptide, where the NS has an average A/T content of < 60%; (2) a nucleic acid comprising a fungal NS which is identical to a sequence of at least 50 nucleotides in (S1) or (S2) or is complementary to this sequence; (3) an isolated nucleic acid having a NS with at least 50% homology to (S1) or (S2); (4) a nucleic acid construct comprising a NS having (S1) or (S2) operably associated with an expression control sequence functional in a microbial cell; (5) a nucleic acid construct comprising a NS having an A/T content of < 60% encoding a functionally active Delta 6-desaturase having an amino acid sequence which corresponds to or is complementary to all of or a portion of an amino acid sequence (S2), or (S4) where the NS is operably associated with a transcription control sequence functional in a yeast cell; (6) a recombinant yeast cell comprising a nucleic acid construct as in (5); (7) a recombinant yeast cell comprising at least 1 copy of a vector comprising a fungal NS which encodes a polypeptide which converts 18:2 fatty acids to 18:3 fatty acids or 18:3 fatty acids to 18:4 fatty acids, where the yeast cell or an ancestor of the yeast cell was transformed with the vector to produce the recombinant yeast cell, and where the NS is operably associated with an expression control sequence functional in the recombinant yeast cell; (8) an isolated or purified polypeptide which desaturates a fatty acid molecule at carbon 12 or carbon 6 or from the carboxyl end of the polypeptide, where the polypeptide is a fungal polypeptide or is derived from a fungal polypeptide; (9) an isolated nucleic acid encoding a polypeptide as in (8); (10) a host cell comprising a vector which includes a nucleic acid which encodes a fatty acid desaturase derived from Mortierella alpina, where the desaturase has an amino acid sequence (S3), and where the NS is operably linked to a promoter; (11) a recombinant yeast cell comprising at least 1 nucleic acid construct comprising a NS which encodes a functionally active Delta 6 desaturase having an amino acid sequence which corresponds to or is complementary to all or a portion of an amino acid sequence (S3), and at least 1 nucleic acid construct comprising a NS which encodes a functionally active Delta 12 desaturase having an amino acid sequence which corresponds to or is complementary to all or a portion of an amino acid sequence (S4), where the nucleic acid constructs are operably associated with transcription control sequences functional in a yeast cell, and (12) a method for obtaining altered long chain polyunsaturated fatty acid (PUFA) biosynthesis comprising growing a plant having cells which contain at least 1 transgene, derived from a fungus or algae, which encode a transgene expression product which desaturates a fatty acid molecule at a carbon selected from carbon 6 and carbon 12 from the carboxyl end of the fatty acid molecule, where the at least 1 transgene is operably associated with an expression control sequence, where the at least 1 transgene is pressed, and long chain PUFA biosynthesis in the cells is altered; (13) an isolated peptide sequence selected from 11 amino acid sequences (all sequences are given in the specification).

USE - The products and methods can be used for desaturating fatty acids. The PUFA biosynthesis method can be used for obtaining microbial oils which can be used for treating or preventing malnutrition, in pharmaceutical compositions, in a nutritional formula, as a dietary supplement, in cosmetics or in animal feed (claimed). In particular, PUFAs can be used for treating e.g. restenosis after angioplasty, inflammation, rheumatoid arthritis, asthma, psoriasis, cancer, diabetes or eczema or reduce blood pressure. They can also be used to inhibit platelet aggregation, cause vasodilation, lower cholesterol levels, inhibit proliferation of vessel wall smooth muscle and fibrous tissue, reduce or prevent gastro-intestinal bleeding and other side effects caused by non-steroidal anti-inflammatory drugs, prevent or treat endometriosis and premenstrual syndrome, treat myalgic encephalomyelitis and chronic fatigue after viral infections, treat AIDS, multiple sclerosis, acute respiratory syndrome, hypertension and inflammatory skin disorders. The recombinant eukaryotic cells, e.g. yeast cells or their ancestors transformed with a vector comprising fungal DNA encoding a polypeptide which converts ALA to stearidonic acid (SA) or oleic acid to linoleic acid (LA), or LA to gamma-linolenic acid (GLA), may be used for production of SA, LA, or GLA in a eukaryotic cell culture (claimed).

ABSTRACTED-PUB-NO:

US 6136574A EQUIVALENT-ABSTRACTS:

An isolated nucleic acid having a 1617 or 1488 base pair sequence ((S1) and (S2) encoding a polypeptide of 457 or 399 amino acids ((S3) and (S4)) respectively, is new. Also claimed: (1) an isolated nucleic acid comprising a nucleotide sequence (NS) which encodes a polypeptide which desaturates a fatty acid molecule at carbon 6 or 12 from the carboxyl end of the polypeptide, where the NS has an average A/T content of < 60%; (2) a nucleic acid comprising a fungal NS which is identical to a sequence of at least 50 nucleotides in (S1) or (S2) or is complementary to this sequence; (3) an isolated nucleic acid having a NS with at least 50% homology to (S1) or (S2); (4) a nucleic acid construct comprising a NS having (S1) or (S2) operably associated with an expression control sequence functional in a microbial cell; (5) a nucleic acid construct comprising a NS having an A/T content of < 60% encoding a functionally active Delta 6-desaturase having an amino acid sequence which corresponds to or is complementary to all of or a portion of an amino acid sequence (S2), or (S4) where the NS is operably associated with a transcription control sequence functional in a yeast cell; (6) a recombinant yeast cell comprising a nucleic acid construct as in (5); (7) a recombinant yeast cell comprising at least 1 copy of a vector comprising a fungal NS which encodes a polypeptide which converts 18:2 fatty acids to 18:3 fatty acids or 18:3 fatty acids to 18:4 fatty acids, where the yeast cell or an ancestor of the yeast cell was transformed with the vector to produce the recombinant yeast cell, and where the NS is operably associated with an expression control sequence functional in the recombinant yeast cell; (8) an isolated or purified polypeptide which desaturates a fatty acid molecule at carbon 12 or carbon 6 or from the carboxyl end of the polypeptide, where the polypeptide is a fungal polypeptide or is derived from a fungal polypeptide; (9) an isolated nucleic acid encoding a polypeptide as in (8); (10) a host cell comprising a vector which includes a nucleic acid which encodes a fatty acid desaturase derived from Mortierella alpina, where the desaturase has an amino acid sequence (S3), and where the NS is operably linked to a promoter; (11) a recombinant yeast cell comprising at least 1 nucleic acid construct comprising a NS which encodes a functionally active Delta 6 desaturase having an amino acid sequence which corresponds to or is complementary to all or a portion of an amino acid sequence (S3), and at least 1 nucleic acid construct comprising a NS which encodes a functionally active Delta 12 desaturase having an amino acid sequence which corresponds to or is complementary to all or a portion of an amino acid sequence (S4), where the nucleic acid constructs are operably associated with transcription control sequences functional in a yeast cell, and (12) a method for obtaining altered long chain polyunsaturated fatty acid (PUFA) biosynthesis comprising growing a plant having cells which contain at least 1 transgene, derived from a fungus or algae, which encode a transgene expression product which desaturates a fatty acid molecule at a carbon selected from carbon 6 and carbon 12 from the carboxyl end of the fatty acid molecule, where the at least 1 transgene is operably associated with an expression control sequence, where the at least 1 transgene is pressed, and long chain PUFA biosynthesis in the cells is altered; (13) an isolated peptide sequence selected from 11 amino acid sequences (all sequences are given in the specification).

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WO 9846763A

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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Terms	Documents
(mortierella alpina or m. alpina) and (desaturase or oxidase or oxidoreductase) and (Carbon adj2 6 or C adj2 6)	19

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